CLAIMS

WHAT IS CLAIMED:

1.   A method, comprising:

detecting a fault associated with processing of a workpiece in a manufacturing system having a plurality of processing tools;

identifying at least one of the processing tools that processes the workpiece; and

providing an error signal to the at least one of the identified processing tools to perform diagnostics based on the detected fault.

2.   The method of claim 1, wherein each of the plurality of the processing tools comprises an associated equipment interface, wherein providing the error signal comprises providing the error signal to the equipment interface of the at least one of the identified processing tools.

3.   The method of claim 1, further comprising performing corrective action based on performing the diagnostics.

4.   The method of claim 3, wherein performing the corrective action comprises performing the corrective action based on a classification of the fault.

5.   The method of claim 1, wherein detecting the fault comprises receiving operational data from one or more of the identified processing tools and comparing the operational data to fault model data.

6.   The method of claim 1, wherein identifying the at least one of the processing tools comprises accessing a history module including a list of one or more of the plurality of the processing tools that process the workpiece.

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7.   The method of claim 1, wherein detecting the fault comprises receiving metrology data and determining that at least a portion of the metrology data is not within an acceptable range.

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8.   An equipment interface of a processing tool, comprising:

a storage unit; and

a control unit communicatively coupled to the storage unit, the control unit adapted to:

receive an error signal provided by a fault detection unit, wherein the error signal is indicative of an error condition associated with the processing tool of a manufacturing system;

access information related to the error condition from a central database; and

determine a possible cause of the error condition based on the accessed

20   information.

9.   The equipment interface of claim 8, wherein the control unit is adapted to perform diagnostics on the processing tool based on the accessed information.

10. The equipment interface of claim 8, wherein the error condition is associated with processing of a wafer by the processing tool.

11. The equipment interface of claim 8, wherein the error condition is based on a comparison of metrology data to an acceptable range of values.

12. The equipment interface of claim 8, wherein the error condition is based on a comparison of an operation data that is provided by the processing tool and fault model data.

13. The equipment interface of claim 8, wherein the central database comprises entries regarding classification of the error condition.

14. The equipment interface of claim 8, wherein the control unit is adapted to receive the error signal over an APC framework and wherein the error signal is a combinational error signal.

15. An article comprising one or more machine-readable storage media containing instructions that when executed enable a processor to:

    receive an error signal provided by a fault detection unit, wherein the error signal is indicative of a fault associated with processing of a wafer in a processing tool;

    access information related to the fault from a central database; and

    perform diagnostics on the processing tool based on the accessed information.

16.   The article of claim 15, wherein the instructions when executed enable the processor to perform corrective action to cure the fault indicated by the error signal.

17.   The article of claim 15, wherein the instructions when executed enable the processor to determine the fault based on comparing operation data from the processing tool to fault model data.

18.   The article of claim 15, wherein the instructions when executed enable the processor to determine the fault based on metrology data associated with the wafer that is processed by the processing tool.

19.   The article of claim 15, wherein the instructions when executed enable the processor to access the central database to retrieve information related to a classification of the fault.

20.   The article of claim 15, wherein the instructions when executed enable the processor to receive a combinational error signal indicating that the fault may have been due to at least two processing tools.

21.   A system, comprising:

        a plurality of processing tools adapted to process a lot of wafers; and

        a fault detection data processing unit communicatively coupled to the plurality of processing tools over a framework, the fault detection data processing unit adapted to:

receive metrology data based on the lot of wafers processed by at least

one of the processing tools;

detect a fault based on the received metrology data;

identify one or more of the plurality of processing tools that processes

the lot of wafers; and

provide an error signal to the one or more of the identified processing

tools based on the detected fault.

22.   The system of claim 21, wherein each of the processing tools comprises an associated equipment interface, and wherein the fault detection data processing unit provides the error signal to the equipment interface of the one or more of the identified plurality of processing tools.

23.   The system of claim 22, wherein the fault detection data processing unit comprises a database including a classification of the detected fault.

24.   The system of claim 22, wherein the equipment interface performs diagnostics on the one or more of the identified plurality of processing tools.

25.   The system of claim 22, wherein the equipment interface takes corrective action to cure the fault in at least one of the identified plurality of processing units.

26.   An apparatus comprising:

means for detecting a fault associated with processing of a workpiece in a

manufacturing system having a plurality of processing tools;

means for identifying at least one of the processing tools that processes the

workpiece; and

means for providing an error signal to the at least one of the identified

processing tools to perform diagnostics based on the detected fault.

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